J. New York Entomol. Soc. 95(1):118–119, 1987

NOTES AND COMMENTS

POLYBIA (*MYRAPETRA*) *PAULISTA* (HYMENOPTERA: VESPIDAE), AN AERIAL PREDATOR OF SWARMING ANTS (HYMENOPTERA: FORMICIDAE) IN BRAZIL

During reproduction in the majority of ant species, alate males and females leave the nest to mate and disperse. Generally, male ants exit before females, and in at least some species, form leks (Brian, 1983). It is also during the nuptial flight, or swarming, that extreme mortality of reproductives occurs, chiefly through predation and execution by conspecifics (Brian, 1965). Some predators of reproductive ants during the period of nuptial flight include social wasps. Van der Vecht (1957) and Chapman (1963) have described how social wasps actively capture ants in swarms. In both cases, the aerially captured ants were dismembered, and wasps apparently returned to their nest with small balls of ant meat, or with ant hemolymph carried in their crops.

In South America, polybiine wasps are locally quite abundant, and, in some cases, construct enormous nests (Richards and Richards, 1951). Many of the polybiine genera, like their vespoid relatives, are general predators. In a recent study, Gobbi et al. (1984) found that the prey of *Polybia occidentalis occidentalis* (Olivier) was largely alate ants during the spring (September and October). Like other species of the genus, *P. occidentalis* stores intact prey in the lower levels of the enclosed aerial nest. If prey are particularly abundant, colonies tend to overstock. In these cases, more prey are stored than can be fed to the larvae in a reasonable time period, and fungal contamination of the stored prey often occurs (Gobbi, 1984).

This note discusses the predatory behavior of *Polybia paulista* (Ihering) on swarms of *Conomyrma,* probably *brunnea* (Forel) in central Brazil.

Swarms of *Conomyrma* formed between 11 A.M. and 1 P.M. (ST) over a grassy field in Rio Claro, São Paulo, Brazil, on 7 and 8 September 1985. This diurnal time window is within the expected flight period of *Conomyrma* (MacKay and MacKay, 1984). The first rainfall in over one month fell on 6 September. Swarms formed over taller herbaceous vegetation or fenceposts at heights of 1 to 2 m. Swarm density was approximately 700/ha, with swarms occurring about every 5 m. Swarms were generally compact, 30 to 40 cm in diameter, and tended to move vertically and horizontally continuously.

An aerial net, 38 cm in diameter, was used to sample swarms. One sweep was made through the center of each swarm sampled. Each sweep sample was placed in alcohol and sorted in the laboratory. The number of male and female *Conomyrma* and *P. paulista* workers per sample was recorded.

The number of *P. paulista* workers per swarm was found to be highly correlated with lek size ($r = 0.754$, $P < 0.001$), suggesting that *P. paulista* was responding numerically to swarm size. Individual captures of 22 *P. paulista* workers leaving swarms

indicated that all had captured only males. Because of this, it is probable that *P. paulista* has a minimal effect on the population dynamics of *Conomyrma*. However, swarms of ants may provide an abundant resource to spur colony growth of *P. paulista* in the spring, allowing it to attain colony population levels capable of controlling populations of its summer prey, Hemiptera and Homoptera (Gobbi et al., 1984).—*H. G. Fowler, Instituto de Biociências, Universidade Estadual Paulista (UNESP), 13,500 Rio Claro, São Paulo, Brazil.*

ACKNOWLEDGMENTS

I would like to thank Nivar Gobbi for helpful discussions, and Elena Fowler for help with collections and counts.

LITERATURE CITED

Brian, M. V. 1965. Social Insect Populations. Academic Press, New York.

Brian, M. V. 1983. Social Insects: Ecology and Behavioral Ecology. Chapman and Hall, New York.

Chapman, J. A. 1963. Predation by *Vespula* wasps on hilltop swarms of winged ants. Ecology 44:766–767.

Gobbi, N. 1984. Contribuição ao estudo do ciclo básico de espécies do gênero *Polybia*, com especial referência a *Polybia* (*Myrapetra*) *paulista* (Ihering, 1896) e *Polybia occidentalis occidentalis* (Olivier, 1791) (Hymenoptera: Vespidae). Revta. Bras. Entomol. 28:451–457.

Gobbi, N., V. L. L. Machado and J. A. Tavares Filho. 1984. Sazonalidade das presas utilizadas na alimentação de *Polybia occidentalis occidentalis* (Olivier, 1791). An. Soc. Entomol. Bras. 13:63–69.

MacKay, E. E. and W. P. MacKay. 1984. Apoyo a la actual división genérica de hormigas usando etología comparativa (Hymenoptera: Formicidae). Folia Entomol. Mexicana 61: 179–188.

Richards, O. W. and M. J. Richards. 1951. Observations on the social wasps of South America (Hym., Vespidae). Trans. R. Entomol. Soc. London 102:1–170.

Van der Vecht, J. 1957. The Vespinae of the Indo-Malaysian and Papuan areas (Hymenoptera: Vespidae). Zool. Verh. Leiden 34:1–83.